



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/578,355	05/24/2000	Hiroshi Kowaki	39487/DBP/A400	4894
23363	7590	08/04/2005	EXAMINER	
CHRISTIE, PARKER & HALE, LLP PO BOX 7068 PASADENA, CA 91109-7068			LAO, LUN S	
			ART UNIT	PAPER NUMBER
			2644	

DATE MAILED: 08/04/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/578,355

Applicant(s)

KOWAKI, HIROSHI

Examiner

Lun-See Lao

Art Unit

2644

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 03 June 2005.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 19-21,24-30,32-38,40-46 and 48-54 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 19-21,24-30,32-38,40-46 and 48-54 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____.
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____.

DETAILED ACTION

Introduction

1. This action is response to the amendment filed on 06-03-2006. Claims 19-20, 25, 30, 33, 38, 41, 46 and 49 have been amended and claims 19-21 and claims 23, 31, 39 and 47 have been canceled. Claims 19-21, 24-30, 32-38, 40-46 and 48-54 are pending.

Claim Rejections - 35 USC § 103

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

3. Claims 19-21, 24, 30, 32 and 38, 40, 46, 48, 54 are rejected under 35 U.S.C. 103(a) as being unpatentable over Yanagawa (US PAT. 5,128,999) in view of Hoellermann (JP 07-087598).

Consider claim 19, Yanagawa teaches an audio system for reproducing at least three independent original audio signals (see fig.3 (L_{in} , R_{in} , S_{in} , C_{in})) at a plurality of reproduction points, the audio system comprising:

at least one processing circuit for producing a processed sound signal from said independent original audio signals (see fig.3 (L_{in} , R_{in} , S_{in} , C_{in})), by branching a signal

Art Unit: 2644

from one of said independent original audio signals (see fig.3 (L_{in} , R_{in} , S_{in} , C_{in}), branched audio signal (C_R , FL_R , RL_R , RR_R), and attenuating the amplitude level of said delayed audio signal (63-66); and at least one processing circuit for adding said processed sound signal to one of said independent original audio signals(see fig.3 (L_{in} , R_{in} , S_{in} , C_{in}) other than the independent original audio signals (see fig.3 (L_{in} , R_{in} , S_{in} , C_{in}) from which said processed sound signal is produced (see col.3 line 53-col.4 line 18), but Yanagawa does not clearly teach delaying said branched audio signal in accordance with at least one distance between said reproduction points; and wherein said at least one processing circuit for producing a processed sound signal attenuates the amplitude level of said delayed audio signal in accordance with the law of the first wave front (Haas effect).

However, Hoellermann teaches delaying a branched audio signal in accordance with at least one distance between reproduction points (see figs. 1-2 and abstract, constitution and detailed description page 3 [0024]-page4 [0026]); and wherein said at least one processing circuit for producing a processed sound signal attenuates the amplitude level of said delayed audio signal in accordance with the law of the first wave front (Haas effect) (see figs. 1-2 and detailed description page 1 [0004]- [0005])

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to combine the teaching of Hoellermann into Yanagawa to provide the sound transit time from each loudspeaker to a listening place is established, and this time delay is solved by the composition automatically set up so

Art Unit: 2644

that the sum of the sound transit time and time delay set up , respectively become equal to all loudspeakers.

Consider claim 38, it is the method claim corresponding to apparatus claim 19.

See previous apparatus claim 19 for rejection.

Consider claims 20-21, Yanagawa teaches that an audio system of the independent original audio signals (see fig.3 (L_{in} , R_{in} , S_{in} , C_{in})) comprise at least one front signal, at least one rear signal and a center signal (see fig.3 (L_{in} , R_{in} , S_{in} , C_{in}); said at least one processing circuit for producing a processed sound signal comprises at least one front processing circuit (L_{in}) for producing at least one processed front sound signal (L_{out}) and a center processing circuit (C_{in}) for producing a processed center sound signal (C_{out}); said at least one front processing circuit (L_{in}) produces said at least one processed front sound signal by branching said at least one front signal, delaying said branched at least one front signal (63) in accordance with at least one distance between at least one reproduction point associated with said at least one front signal (L_{in}) and at least one other reproduction point, and attenuating the level of said delayed at least one front signal (63); and said at least one center processing circuit (C_{in}) produces a processed center sound signal by branching said center signal, delaying said branched center signal (66) in accordance with at least one between a reproduction point associated with said center signal (C_{out}) and at least one other reproduction point, and attenuating the level of said delayed center signal (66); and said at least one processing circuit for adding (51) said at least one processed front sound signal (L_{in}) and said processed center sound signal (C_{in}) to said at least one rear audio

Art Unit: 2644

signal (RR_R) (see col.3 line 53-col.4 line 51); and an audio system of least one rear signal (see fig.3, (Sin)) comprises a rear left signal (RL_R) and a rear right signal (RR_R); and said at least one processed front sound signal (FL_{out}) comprises a processed front left signal (Lin) and a processed front right signal (Rin); but Yanagawa does not clearly teach delaying said branched audio signal in accordance with at least one distance between said reproduction points; and wherein said at least one processing circuit for producing a processed sound signal attenuates the amplitude level of said delayed audio signal in accordance with the law of the first wave front (Haas effect).

However, Hoellerman teaches delaying a branched audio signal in accordance with at least one distance between reproduction points (see figs. 1-2 and abstract, constitution and detailed description page 3 [0024]-page4 [0026]); and wherein said at least one processing circuit for producing a processed sound signal attenuates the amplitude level of said delayed audio signal in accordance with the law of the first wave front (Haas effect) (see figs. 1-2 and detailed description page 1 [0004]- [0005])

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to combine the teaching of Hoellermann into Yanagawa to provide the sound transit time from each loudspeaker to a listening place is established, and this time delay is solved by the composition automatically set up so that the sum of the sound transit time and time delay set up, respectively become equal to all loudspeakers.

Art Unit: 2644

Consider claim 24, Yanagawa teaches a processing circuit for producing a processed sound signal further corrects a frequency characteristic of said processed sound signal (see abstract and see col.4 line 19-col.5 line 25);

Consider claim 30, Yanagawa teaches an audio system for reproducing at least three independent original audio signals (see fig.3 (L_{in} , R_{in} , S_{in} , C_{in})) each of which is reproduced at a plurality of different reproduction points, comprising (see fig.3):

at least one processing stage for producing a processed sound signal from said independent original audio signals (see fig.3 (L_{in} , R_{in} , S_{in} , C_{in})) to be reproduced at a plurality of predetermined reproduction points located far from a given reproduction point (FLout, FRout, FLout, RRout and Cout) said at least one processing stage comprising: a plurality of branch-processing stages (41,43,47,45); a first add-processing stage (51); and a processed sound generating stage (63);

said branch-processing stages(41,43,45,47) each branching a signal from one of independent said original audio signals(see fig.3 (L_{in} , R_{in} , S_{in} , C_{in}));

said first add-processing stage adding (51) said branched audio signals to each other,

said processed sound generating stage delaying (63) said added audio signal and attenuating the level of said added (51) audio signal;

at least one distribution-processing stage for distributing said processed sound signal to one or a plurality of audio signals (see fig.3 (L_{in} , R_{in} , S_{in} , C_{in})) to be reproduced at said predetermined reproduction points (FLout, FRout, FLout, RRout, Cout) (see col.4 line 19-col.5 line 35); and

at least one second signal add-processing stage (54), each for adding said distributed signals to one of said independent original audio signals (see fig.3 (L_{in} , R_{in} , S_{in} , C_{in})) other than the independent original audio signals (see fig.3 (L_{in} , R_{in} , S_{in} , C_{in})) from which the signals are branched (see co.3 line 53-col.4 line 35), but Yanagawa does not clearly teach that said processed sound generating stage delaying said added audio signal is performed in accordance with the distance from said given reproduction point to said predetermined reproduction points located far from said given reproduction point; and wherein said at least one processing circuit for producing a processed sound signal attenuates the amplitude level of said delayed audio signal in accordance with the law of the first wave front (Haas effect).

However, Hoellermann teaches that a processed sound generating stage delaying an added audio signal in accordance with the distance from a given reproduction point to predetermined reproduction points located far from the given reproduction point (see figs. 1-2 and abstract, constitution and detailed description page 3 [0024]-page4 [0026]); and wherein said at least one processing circuit for producing a processed sound signal attenuates the amplitude level of said delayed audio signal in accordance with the law of the first wave front (Haas effect) (see figs. 1-2 and detailed description page 1 [0004]- [0005])

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to combine the teaching of Hoellermann into Yanagawa to provide the sound transit time from each loudspeaker to a listening place is established, and this time delay is solved by the composition automatically set up so

Art Unit: 2644

that the sum of the sound transit time and time delay set up , respectively become equal to all loudspeakers.

Consider claim 46, it is the method claim corresponding to apparatus claim 30. See previous apparatus claim 30 for rejection.

Consider claim 32, Yanagawa teaches a processing stage (see fig.3, (VCA)) further corrects a frequency characteristic of said processed sound signal (see col.4line 7-col.5 line 35).

As to claim 48, there is the method claims of claim 32 and thus note the rejection of claim 32, respectively.

Consider claim 40, Yanagawa teaches that the producing a processed sound signal comprises correcting a frequency characteristic of said processed sound signal (see col.3 line 53-col.4 line 52).

Consider claim 54, Hoellermann teaches that the sound signals for the reproduction points are adjusted in accordance with at least one distance between the reproduction points and a listener (see figs. 1-2 and abstract, constitution and detailed description page 3 [0024]-page4 [0026]).

4. Claims 25-29, 33-37, 41-45, 49-53 are rejected under 35 U.S.C. 103(a) as being unpatentable over Yanagawa (US PAT. 5,128,999) as modified by Hoellermann (JP 07-087598) as applied to claims 19, 30, 38 and 46 above, and further in view of Kuusama (US PAT. 6,332,026).

Consider claims 25 and 33, Yanagawa as modified by Hoellermann does not clearly teach that the independent original audio signals are six audio signals and include an audio signal to be reproduced at a center front position in an audio space, audio signals to be reproduced on a left front side and a right front side in an audio space, audio signals to be reproduced on a left rear side and a right rear side in an audio space, and an audio signal of low frequency.

However, Kuusama teaches that the independent original audio signals are six audio signals (see fig.3 (L, R, LS, RS, C, S) and include an audio signal to be reproduced at a center front position (19) in an audio space, audio signals to be reproduced on a left front side (17) and a right front side (18) in an audio space, audio signals to be reproduced on a left rear side and a right rear side (surround channel) in an audio space, and an audio signal of low frequency (19)(see col.4 line 30-col.5 line 22).

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to combine the teaching of Yanagawa as modified by Hoellermann with the teaching of Kuusama to provide a better surrounding sound system.

Consider claims 41 and 49, these are the method claims corresponding to apparatus claims 25 and 33. See previous apparatus claims 25 and 33 respectively for rejections.

Consider claims 26-29 and 34, Kuusama teaches an audio system of a device for supplying said six audio signals is a multichannel player unit (such as laserdisc

Art Unit: 2644

player and hifi-VCR) for reproducing audio data recorded on a recording medium by a multichannel recording system (see col.1 lines 9-24); and a case where said six audio signals are recorded on said recording medium to be reproduced by said multichannel player unit (such as laserdisc player and hifi-VCR); processed sound signals associated with said audio signals to inherently be reproduced at said center front position and on said left and right front sides(see fig.3, L, R), are added (6) to said audio signals to be reproduced on said left and right rear sides (20, surround sound channel); and processed sound signals associated with said audio signals to be reproduced on said left and right rear sides (LS and RS), are added (6) to said audio signals to be reproduced on said left and right front sides (17,18) and are added (6) to said audio signals to be reproduced at said center front position (21) (see col.4 line 54-col.5line 22); and an audio system further comprising: a switch (see fig.3, (10-12)) for setting a priority mode to determine a listening point in said audio space which receives the optimum sound, wherein the amplitude levels of said audio signals at said center front position, on said left and right front sides (17,18) and on said left and right rear sides (20, surround channel) are changed in accordance with the setting of said switch (see col.4 line 30-col.5 line 29).

Consider claims 42 and 50, these are the method claims corresponding to apparatus claims 26 and 34. See previous apparatus claims 26 and 34 for rejection.

Consider claims 35-36, Kuusama teaches an audio system of a case where said six audio signals (see fig.3 (L, R, LS, RS, C, S) are recorded on said recording medium to be reproduced by said multichannel player unit (see col.1 lines 13-25), audio signals

Art Unit: 2644

to be reproduced at said center front position (c) and on said left and right front sides, are added (6) to audio signals to be reproduced on said left and right rear sides (20, surround channel), respectively, and audio signals to be reproduced on said left and right rear sides (LS, RS) are added to the audio signals to be reproduced on said left and right front sides (17,18) and at said center front position (21), respectively (see col.4 line 30-col.5 line22).

Consider claim 37, this is the method claim corresponding to apparatus claim 29. See previous apparatus claim 29 for rejection.

Consider claims 43-44, Kuusama teaches a method of reproducing audio signals of the six audio signals (see fig.3 (L, R, LS, RS, C, S) are recorded on said recording medium reproduced by said multichannel player unit (see col.1 lines 13-25), the method further comprising: adding (see fig.3,6) processed sound signals associated with said audio signals to be reproduced at said center front position (c) and on said left and right front sides to said audio signals to be reproduced on said left and right rear sides (LS RS); and adding (6) processed sound signals associated with said audio signals to be reproduced on said left and right rear sides (20, surround channel) to said audio signals to be reproduced on said left and right front sides (17,18) and to said audio signals to be reproduced at said center front position (21)(see col.4 line 30-col.5 line22).

Consider claims 45 and 53, Yanagawa teaches a method of reproducing audio signals of further comprising:

setting a priority mode (FLout, FRout, FLout, Rrout, Cout) to determine a listening point in said audio space which receives the optimum sound, wherein the

Art Unit: 2644

amplitude levels of said audio signals at said center front (Cin) position, on said left (Lin) and right (Rin) front sides and on said left and right rear sides (Sin) are changed in accordance with the setting of said mode (see col.3 line 53-col.4 line 52).

Consider claims 51-52 , Kuusama teaches a method of reproducing audio signals of six audio signals(see fig.3 (L, R, LS, RS, C, S) are recorded on said recording medium reproduced by said multichannel player unit, the method further comprising (see col.1 line 13-25):

adding (6) audio signals to be reproduced at said center front position(21) and on said left and right front sides (L, R) to audio signals to be reproduced on said left and right rear sides(20, surround channel), respectively; and

adding (6) audio signals to be reproduced on said left and right rear sides (20, surround channel) to audio signals to be reproduced on said left and right front sides (17,18) and at said center front position(c), respectively (see col.4 line 53-col.5 line22).

Response to Arguments

5. Applicant's arguments with respect to claims 19-21, 24-30, 32-38, 40-46 and 48-54 have been considered but are moot in view of the new ground(s) of rejection.

Conclusion

6. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

Art Unit: 2644

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

7. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Gorike (US PAT. 4,256,922) and Fidi (US PAT. 5,033,086) are cited to show other related an audio system.

8. Any response to this action should be mailed to:

Mail Stop ____ (explanation, e.g., Amendment or After-final, etc.)

Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

Facsimile responses should be faxed to:

(703) 872-9306

Hand-delivered responses should be brought to:

Customer Service Window
Randolph Building
401 Dulany Street
Alexandria, VA 22314

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Lao,Lun-See whose telephone number is (571) 272-7501. The examiner


Art Unit: 2644

can normally be reached on Monday-Friday from 8:00 to 5:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Chin Vivian, can be reached on (571) 272-7848.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the Technology Center 2600 whose telephone number is (571) 272-2600.

Lao,Lun-See
Patent Examiner
US Patent and Trademark Office
Knox
571-272-7501
Date 07-28-2005



VIVIAN CHIN
SUPERVISORY PATENT EXAMINER
TECHNOLOGY CENTER 2600